

Invention claim

1. Methods for contactless measurement of the wall 1  
thickness of transparent object to be measured by employing 2  
of light sources, lenses, deflection mirrors or deflection 3  
prisms, semi permeable mirrors as well as line sensors and a 4  
controller, characterized in that the light from the 5  
illuminating surface (11) is initially collimated and in the 6  
following focused onto the surface of the object to be 7  
measured (1) under an <sup>OF</sup> angle incidence relative to the normal 8  
of the surface, wherein the two reflexes of light, which 9  
reflexes occur at the front side and at the back side, are 10  
imaged furthermore onto the opto-electronic image resolving  
sensor (26) and wherein the light from the second  
illuminating surface (21) is simultaneously also initially  
collimated and in the following focused in the direction  
toward the surface of the object to be measured (1), wherein 15  
the direction toward the surface of the object to be  
measured (1) corresponds to the exit direction of the light  
from the illuminating face (11), and wherein furthermore the  
reflexes of the second beam are imaged onto the second opto-  
electronic image resolving sensor (16) and wherein the 20  
average value of the distances of the respective two

reflexes on the two opto-electronic image resolving sensors is evaluated as a measure of the wall thickness in a following disposed controller (3).

2. Device for contactless measurement of the wall thickness of transparent object to be measured employing light sources, lenses, semi permeable mirrors or semi permeable prisms as well as image resolving sensors and a controller, characterized in that the lens (12) is disposed following to the first illuminating surface (11), wherein the semi permeable mirror (13) is disposed behind the lens (12) in such way that the light is reflected into the objective (14) and is further focused onto the measurement object (1) and wherein furthermore the objective (24) is disposed such that the objective (24) together with the lens (25) images the beams reflected at the object to be measured onto the sensor (26) through the semi permeable mirrors (23) and wherein the lens (22) is simultaneously coordinated to the second illuminating face (21), wherein the semi permeable mirror (23) is disposed following to the lens (22) in such way that the light from the second illuminating face is focused also onto the object to be measured (1) the objective (24), wherein the direction of incidence of the

light corresponds to the exit direction of light from the <sup>20</sup>  
first illuminating face and wherein the reflexes are imaged <sup>21</sup>  
onto the sensor (16) through the objective (14), wherein the <sup>22</sup>  
controller (3) is connected following to the two sensors. <sup>23</sup>

2ul  
A8  
3. Device according to claim 2, characterized in that  
the illuminating faces (11) and (21) are light exit openings  
of light guides.

2ul  
C5  
4. Device according to claim 2 and 3, characterized in  
that the light exit opening of the light guides is formed of  
line shape.

5. Device according to claim 2, characterized in that  
the illuminating faces (11) and (21) are lasers with beam  
expansion optics.

2ul  
A9  
6. Device according to claim 2, characterized in that  
the illuminating faces (11) and (21) are light sources with  
the predisposed slot diaphragms.

add A10

add B2

add D1

add C10